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HEALTH LITERACY IN STUDENTS IN QUEENS, NY

Joohyun Lee

Nitesh K. Kunda, Ph.D.

INTRODUCTION

Health literacy is the degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions (Patient Protection and Affordable Care Act, Title V, 2010). A deficiency in health literacy can affect a person's ability to communicate effectively with his or her healthcare provider, to understand all kinds of risks and possibilities, to choose insurance plans, and so much more. About seventy-seven million adults in America have basic or below basic health literacy, meaning that they have trouble with understanding instructions such as "following directions on a prescription drug label" (Office of Disease Prevention and Health Promotion Health Communication Activities, n.d.). Those with low health literacy have higher rates of hospitalization and lesser rates for use of preventative services (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2015). Also, there exists bigger issues as seventy-five percent of Americans that have a long term illness had limited literacy, and almost fifty percent of those chronically ill were unaware of all the assistance and services that were available to them (Parker, Ratzan, & Lurie, 2003).

The inability to utilize the healthcare system and make good health decisions is an issue that affects all age groups and all backgrounds. In particular, the most affected population of health illiteracy are young children. Evidence has shown that

inadequately prepared children and adolescents along with inadequate early education has led to poor health literacy levels in adults. There is a need to improve health literacy through public education and specific curricula that promote good health while students are young. It has been said that "efforts to improve health literacy will have a greater national impact if they start before adult-onset chronic diseases are established, ideally

while children and adolescents are developing their health behaviors" (Winkelman et al, 2016, December).

In an assessment from a sample of around 19,000 adults from the National Assessment of Adult Literacy, adults were given multiple components and sections to complete to assess literacy. A score of 0-184 was below basic; a score of 185-225 was basic; a score of 226-309 was intermediate; and a score

of 310 to 500 was proficient. A person with basic health literacy was able to perform "simple and everyday literacy activities" (Cutilli & Bennett, 2009). On average, the higher they were above the poverty level, the higher the literacy score was (Cutilli & Bennett, 2009). Joshi et al have shown that generally people with low incomes have little to no health literacy, which then causes a high risk factor for many future diseases (Joshi et al, 2014). Additionally, patients from low incomes were shown to be less likely to engage in preventive activities and experience difficulties navigating health services (Joshi et al, 2014). Further, this research stated consistent evidence for an association between an individual's level of

The inability to utilize the healthcare system and make good health decisions is an issue that affects all age groups and all backgrounds.

health literacy and their health behaviors (most notably, decisions and actions about their lifestyle behavior). A combination of the inability to afford treatment and the inability to understand the severity of their condition proves to be detrimental to this population as well as the children of this age group. All of this suggests that the lower the socioeconomic class, the lower the health literacy and the less is done to create healthy habits and follow doctor's orders to better overall health. Those who had insufficient health literacy, due to their inability to understand the severity or harmfulness of their actions, engaged in less healthy behaviors, smoked cigarettes more, and ate less than the recommended amount of vegetables and fruits. This resulted in higher levels of cardiac disease, stroke, and diabetes (Joshi et al, 2014).

87% of deaths in the United States stems from chronic diseases, most of which could have been prevented from early preventative care, lifestyle choices, and doctor visits (Schmidt, 2016). The long term research, Abecedarian Project, which was done on young children, determined that having some help and assistance would decrease obesity and high blood pressure by 40%, just high blood pressure by 30%, and metabolic syndrome by around 25% (Goodman & Conway, 2016, January 6). This shows that instilling good habits in children had proven to be effective in maintaining good health literacy and overall better health.

HEALTH ILLITERACY SPECIFICALLY IN NEW YORK CITY

There is a difference in the demographics of the people in New York City in levels of health, for example, with Manhattan having overall 10% more physical activity, 10% less obesity, and 4.25% less diabetes than the other boroughs (New York City Department of Health and Mental Hygiene, n.d.). It brings up the question of what is

being done differently in the same city that there is such a disparity between boroughs.

On a map of health literacy statistics, New York proves to have very inconsistent levels depending on the area. While most of New York City is in the lowest quartile, consisting of mostly Harlem and the Bronx, most of the lower Manhattan area is in the highest quartile (New York City Department of Health and Mental Hygiene, n.d.). The location of lowest and the highest quartile sheds light on the specific demographics—race, socioeconomic status, general access to medical doctors and pharmacies— of those affected by health illiteracy.

METHODS

PARTICIPANTS

A good sample of the diversity of New York City is at St. John's University, located in Queens. St. John's is the second most diverse university in the nation (U.S. News & World Report, n.d.). Selecting a school with students of all backgrounds, races, ages, and genders helps provide a broader picture of health literacy in the world population. It would also help gauge the understanding of health topics among college students and whether they have had adequate assistance from their primary education system to be health literate.

DATA COLLECTION

A survey in the form of "Google Forms" was distributed amongst students through means of Facebook. Appendix A is the Google Form that lists all the questions in the survey that the students were asked to answer. Students were able to go onto the form without having to disclose any personal identifiers such as their email addresses or names. This survey was open to all students across St. John's University. The answers from their SAHL-E were generated into graphs by the Google Forms application, along with the students' general demographic information.

RESULTS

As mentioned previously, the first section of the form consisted of general questions on the student such as their college level and gender. Of the 60 students that responded, males accounted for 28.3% and females for 71.7%.

Figure 1 shows that most of those that took this survey (68.3%) were from the College of Pharmacy and Health Sciences at St. John's. The second largest group to participate was the College of Liberal Arts and Sciences at 15%. The School of Education and the Lesley H. and William L. Collins College of Professional Studies both came in at 5%. The Peter J. Tobin College of Business accounted for 3% of the total.

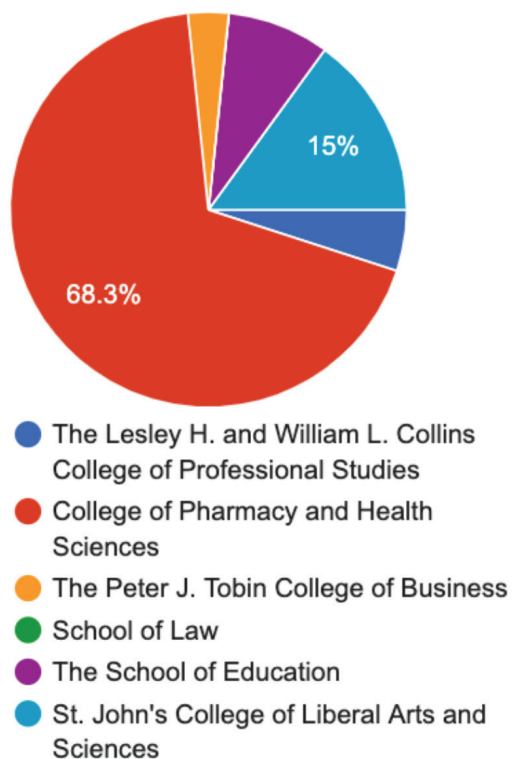


Figure 1. Student participation by college at St. John's University

Participants were relatively evenly distributed in terms of college level (Figure 2). 31.7% of students that had taken this survey were seniors at St. John's University. Both graduate level and junior level came in at 18.3%. Freshmen comprised 16.7%. Lastly, the sophomore group made up 15% of the participants. According to these college students, only 21.7% believed they had received a high level of education on health literacy prior to entering college (Figure 3). Most students believed that they had received enough education, while not excellent.

What College level at St. John's University?

60 responses

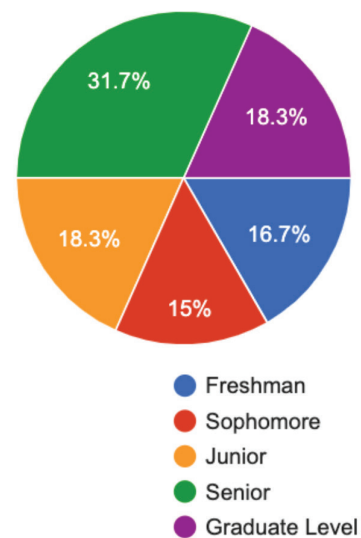


Figure 2. Student participation by college level at St. John's University

Prior to entering college, do you believe there was enough education on issues of health literacy (e.g. washing your hands, brushing your teeth)?

60 responses

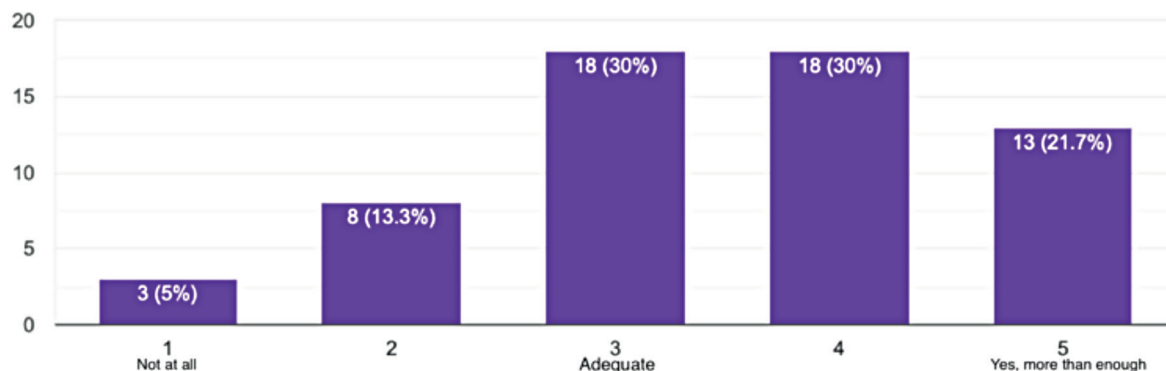


Figure 3. Survey Question: “Do you believe there was enough education on issues of health literacy?”

Most of the students surveyed believed that they were extremely health literate with 76.7% claiming to be above average. 38.3% of these students stated they were extremely proficient (Figure 4). Students mostly claimed they were physically proficient, with

77.2% selecting they were. Emotional health was next, at 75.4%. The lowest dimension of health that students selected they were proficient in, was financial wellness at 26.3% (Figure 5).

How health literate do you believe you are?

60 responses

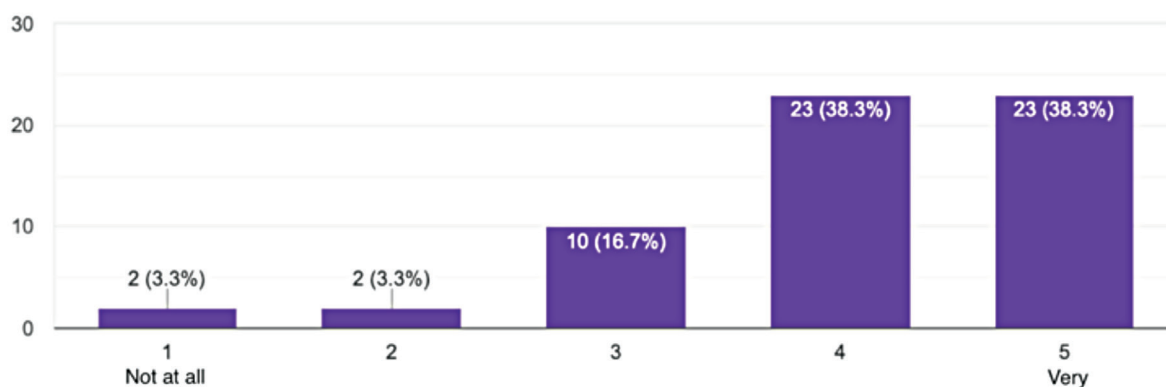


Figure 4. Survey Question: “How health literate do you believe you are?”

Select all the dimensions of health and wellness that you think you are proficient in

57 responses

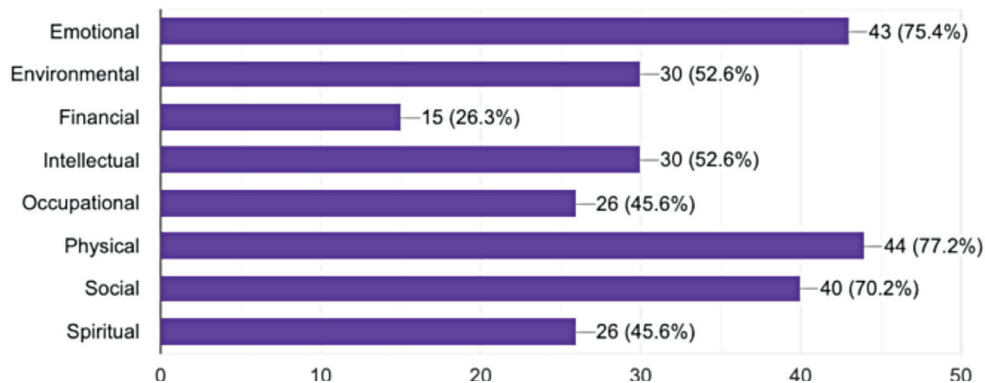


Figure 5. Survey Question: “Select all the dimensions of health and wellness that you think you are proficient in”

A fill-in section followed, asking participants if there was anything else they would like to address about health literacy as a student. There were 11 comments made. Of the 11 comments, many of the students mentioned that there should be more of a focus on mental and emotional health. One student stated that there needs to be a program put in place for students to receive formal training on mental, emotional, and sleep health. Other students mentioned that there is a severe lack of availability of wellness services that they can trust.

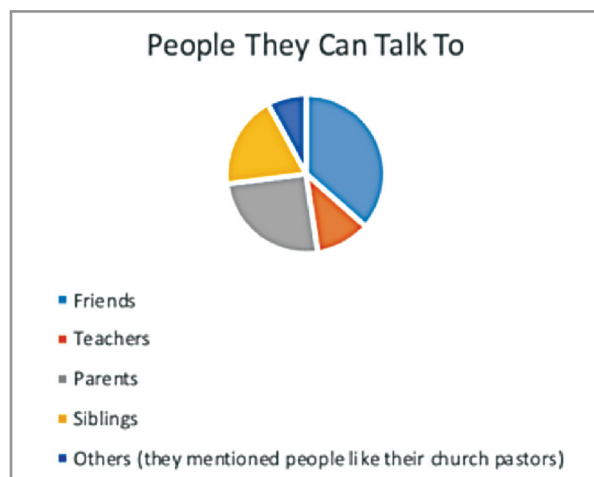
PILOT PROJECT BASED ON DATA

Following the results of this data from the initial survey, a pilot project was implemented to further discuss a lack of health literacy education in primary schooling. Through discussion with members of a pharmacy organization on campus as well as with leaders at a local school, a lecture

presentation idea was created for students as part of an after school program based in New York City. This presentation involved pharmacy students from professional years 1, 2, and 4 coming to present upon basic aspects of health literacy such as mental health, physical health, and social health as well as to host an interactive activity.

Many students actively participated in this lecture. However, after a distribution of post-reflection surveys, it was apparent that the students were still lacking in understanding basics of health literacy. Students scored, on average, 57.24% correctly (Figure 6).

Who can you talk to when you are sad?
Select all that apply.



How long should you wash your hands?

2 minutes
20 seconds
5 seconds

Correct Incorrect
19 10
65.5% Correct

How many hours of sleep should you get?

<6
6 to 8
>8

Correct Incorrect
14 15
48.3% correct

What portion of the plate should be vegetables?

One half
One third
One fourth
One sixth

Correct Incorrect
12 17
41.4% Correct

What are some factors of a good relationship?

Respect **Equality**
Honesty **Good communication**
Trust Hate

Correct Incorrect
18 11
62.1% correct

How many times a week should you exercise (minimally)?

60 minutes
1-2 hours
2-3 hours

Correct Incorrect
20 9
68.9% Correct

Figure 6. Post-survey responses from middle school students.

From this pilot implementation, it was understood that many students lack resources to appropriately make adequate health decisions. Creating a solid basis for students to grow into adults making good health-conscious decisions was a topic to be tackled. Wiche relationship established with the middle school, the ability to continue the discussion on nurturing students to be more health literate is possible.

DISCUSSION

The survey results indicated that college students ultimately do have proficient health literacy. In the SAHL-E portion, on average, students answered correctly 94% of the time. This data showed that college students, on the SAHL-E scale, are proficient in understanding basic health key terms (Table 1).

Please choose the word that you think best correlates with listed word.

Kidney	Urine 96.7%	Fever 3.3%	Don't Know
Occupation	Work 93.3%	Education 6.7%	Don't Know
Medication	Instrument 98.3%	Treatment 1.7%	Don't Know
Nutrition	Healthy 96.7%	Soda 3.3%	Don't Know
Miscarriage	Loss 96.7%	Marriage 3.3%	Don't Know
Infection	Plant 1.7%	Virus 98.3%	Don't Know
Alcoholism	Addiction 91.7%	Recreation 8.3%	Don't Know
Pregnancy	Birth 98.3%	Childhood 1.7%	Don't Know
Seizure	Dizzy 95%	Calm 3.3%	Don't Know 1.7%
Dose	Sleep 5%	Amount 95%	Don't Know
Hormones	Growth 98.3%	Harmony 1.7%	Don't Know
Abnormal	Different 98.3%	Similar 1.7%	Don't Know
Directed	Instruction 95%	Decision 5%	Don't Know
Nerves	Bored 3.3%	Anxiety 96.7%	Don't Know
Constipation	Blocked 96.7%	Loose 3.3%	Don't Know
Diagnosis	Evaluation 96.7%	Recovery 3.3%	Don't Know
Hemorrhoids	Veins 83.3%	Heart 8.3%	Don't Know 8.3%
Syphilis	Contraception 30%	Condom 66.7%	Don't Know 3.3%

Table 1. The SAHL-E portion of the survey broken down into those that were correct and incorrect.

Only 38.3% of the students reported that they felt very confident about how health literate they were, indicating that while their health assessment performance was very high, many students still had qualms about their health literacy.

This initial study demonstrated that there should be more resources created for young students and adolescents to build their confidence on their health literacy. The general response showed how students did not have enough education in health literacy as well as lack of assurance in their levels of it. The follow up implementation of this project proved that there needs to be more continuous education for adolescents rather than students currently receiving a college level education. Further studies would have to be done concerning literacy amongst adolescents that would require an identifiable survey in order to gauge what underlying factors may cause this lack of health literacy.

Through studies done prior, it has already been proven that college educated students were far more proficient in health literacy. There could be further studies to see how each college student has become more proficient in health literacy and what resources they have that would be beneficial to make public and easily accessible for others.

CONCLUSIONS

Initially, there was an assumption that college students at St. John's University would not be proficient in health literacy. However, through the survey, students proved to have proficient literacy in health basics. An interesting discovery garnered through these surveys was the lack of resources that these students had in their primary and secondary education— education prior to entering St. John's University— with only about 21.7% saying there was adequate teaching before college.

The focus then shifts from college students to younger children and adolescents in the Queens, NY area. College students were proven to have higher levels of overall basic health literacy and understanding. Overall, higher levels of education were shown to have a strong correlation with higher levels of health literacy. Children who might not get to the level of higher education may then ultimately be unable to achieve basic health literacy. Creating a resource and early intervention could help students learn the basics and should, therefore, be a target population for future scholars to continue to create opportunities for better health literacy.

The project that had taken place at the middle school showed the issue regarding health literacy may exist in early education. A continuation of this project consisting of an interactive lecture series to students might continue to benefit them and help guide them to make healthy life choices.

LIMITATIONS

This survey was done with only 60 students of the general population of St. John's University, which is a very small sample size. Many of the students that had taken the survey also were from the College of Pharmacy and Health Sciences, (roughly 60%) which could have caused the data to be skewed. Another limitation of this study was that the first portion of this survey was a self-assessment portion, which makes it difficult to objectively gauge.

Additionally, this implementation took place on a Friday afternoon. Staff mentioned that the students were more restless than they usually were due to this timing.

Appendix A

Survey Distributed to Students via Google Forms

Health Literacy across St. John's University Students

This is a survey created for research purposes to assess the health level of students. In addition, this survey will help determine whether there is a need for health literacy intervention among students. This project is performed in conjunction with the Ozanam Scholars program.

This survey is completely anonymous and these answers will not be traced back to the respondent. For any questions, concerns, issues, or for the results of this survey, email joohyun.lee16@stjohns.edu.

* Required

1. What college are you currently apart of? *

Mark only one oval.

- ☐ The Lesley H. and William L. Collins College of Professional Studies
- ☐ College of Pharmacy and Health Sciences
- ☐ The Peter J. Tobin College of Business
- ☐ School of Law
- ☐ The School of Education
- ☐ St. John's College of Liberal Arts and Sciences

2. What do you identify as? *

Mark only one oval.

- ☐ Female
- ☐ Male
- ☐ Prefer not to say
- ☐ Other: _____

3. Prior to entering college, do you believe there was enough education on issues of health literacy (e.g. washing your hands, brushing your teeth)? *

Mark only one oval.

	1	2	3	4	5	
Not enough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	More than enough

4. What College level at St. John's University? *

Mark only one oval.

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior
- ☐ Graduate Level

5. How health literate do you believe you are?

Mark only one oval.

	1	2	3	4	5	
Not literate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very literate

6. Select all the dimensions of health and wellness that you think you are proficient in

Check all that apply.

- ☐ Emotional
- ☐ Environmental
- ☐ Financial
- ☐ Intellectual
- ☐ Occupational
- ☐ Physical
- ☐ Social
- ☐ Spiritual

7. Is there anything you would like to address about health literacy at St. John's? (OPTIONAL)

SAHL-E

SAHL-E: Short Assessment of Health Literacy—English

This tool was designed by the Agency for Healthcare Research and Quality, an area of the US Department of Health and Human Services. Please choose the word that you think best correlates with listed word.

8. Kidney *

Mark only one oval.

- ☐ Urine
- ☐ Fever
- ☐ Don't Know

9. Occupation *

Mark only one oval.

- ☐ Work
- ☐ Education
- ☐ Don't Know

10. **Medication ***

Mark only one oval.

- ☐ Instrument
- ☐ Treatment
- ☐ Don't Know

11. **Nutrition ***

Mark only one oval.

- ☐ Healthy
- ☐ Soda
- ☐ Don't Know

12. **Miscarriage ***

Mark only one oval.

- ☐ Loss
- ☐ Marriage
- ☐ Don't Know

13. **Infection ***

Mark only one oval.

- ☐ Plant
- ☐ Virus
- ☐ Don't Know

14. **Alcoholism ***

Mark only one oval.

- ☐ Addiction
- ☐ Recreation
- ☐ Don't Know

15. **Pregnancy ***

Mark only one oval.

- ☐ Birth
- ☐ Childhood
- ☐ Don't Know

16. **Seizure ***

Mark only one oval.

- ☐ Dizzy
- ☐ Calm
- ☐ Don't Know

17. **Dose ***

Mark only one oval.

- ☐ Sleep
☐ Amount
☐ Don't Know

18. **Hormones ***

Mark only one oval.

- ☐ Growth
☐ Harmony
☐ Don't Know

19. **Abnormal ***

Mark only one oval.

- ☐ Different
☐ Similar
☐ Don't Know

20. **Directed ***

Mark only one oval.

- ☐ Instruction
☐ Decision
☐ Don't Know

21. **Nerves ***

Mark only one oval.

- ☐ Bored
☐ Anxiety
☐ Don't Know

22. **Constipation ***

Mark only one oval.

- ☐ Blocked
☐ Loose
☐ Don't Know

23. **Diagnosis ***

Mark only one oval.

- ☐ Evaluation
☐ Recovery
☐ Don't Know

24. **Hemorrhoids** *

Mark only one oval.

- ☐ Veins
- ☐ Heart
- ☐ Don't Know

25. **Syphilis** *

Mark only one oval.

- ☐ Contraception
- ☐ Condom
- ☐ Don't Know

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ABOUT THE AUTHORS

Joohyun Lee is currently a Doctor of Pharmacy candidate on track for graduation in 2022 at St. John's University. She currently is a part of the Ozanam Scholars Program, a program dedicated to Vincentian leadership and service. She currently

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